Department of Mathematics
University of Notre Dame

Topology Seminar

Title: Quilts and Floer field theory

Speaker: Katrin Wehrheim
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Date: Tuesday, December 6, 2016
Location: 258 Hurley Hall

1st Talk: Quilts and Floer field theory, Part I
Time: 2:30 pm

Break: 3:30 pm
Location: Departmental Tea, 257 Hurley Hall, Lounge

2nd Talk: Quilts and Floer field theory, Part II
Time: 4:00 pm

ABSTRACT:

Floer field theory is a construction principle for e.g. 3-manifold invariants (from my joint work with Chris Woodward and motivated by Atiyah-Floer type conjectures) which proceeds by decomposition in a bordism category and a partial functor to the symplectic category. This talk will provide an introduction to the 2-categorical structures in topology (Bor), symplectic geometry (Symp), and algebra (Cat), with which the Floer field construction principle can be formalized and generalized to a Lurie-type extension principle "Any Floer field theory $_{2+1} \to$ Symp $\to$ Cat which satisfies a quilted naturality axiom has a natural extension to a 2-functor $_{2+1+1} \to$ Symp $\to$ Cat" The core of this theory is a generalization of string diagrams to so-called quilt diagrams, which in the symplectic category are realized in terms of a PDE by "pseudoholomorphic quilts".

Katrin Wehrheim – University of California, Berkeley